

ONYX VALVE CO MODEL DHA

Installation & Maintenance

OPERATION:

(1-04)

The Onyx series DHA is a manually operated, full round full port pinch valve. The valve mechanism drives a pair of steel pinch bars to close the rubber sleeve on centerline. Positive opening tabs molded into the sleeve attached to the pinch bars insure complete opening.

The valve may be fitted with an optional gearbox to facilitate closing against high line pressure, or it may be provided with an electric valve actuator for automated operation.

TESTING:

All Onyx pinch valves are tested to customer specifications before shipment. Unless otherwise specified, all valves are shipped assembled with all accessories piped, mounted, and calibrated.

STORAGE

Correct storage procedures extend valve life. The rubber sleeve in the valve is perishable. Ideal storage conditions are 10°C (50°F) and 60% relative humidity.

1. Keep valves and spare sleeves as cool as possible. They can be stored in an unheated area, but allow maximum ventilation in storage areas subject to high ambient summer temperatures. Truck trailers and storage sheds become incredibly hot during summer months. Avoid such locations.
2. Avoid sunlight. Ultra-violet light accelerates the deterioration of rubber. Leave the valve in its box. If not feasible to box the valve, cover the sleeve with black plastic.
3. Avoid ozone. DO NOT STORE valve near active electrical equipment. If valve will be in storage for a long period, coat the face and inside the sleeve twice yearly with silicone spray or liquid.

CONSTRUCTION

Onyx pinch valve housings are available in Cast Iron, with Ductile Iron available as an option.

Valve stems are carbon steel. Optional stem materials are stainless steel and bronze alloy. The guide bearing is Ultra High Molecular Weight Poly Ethylene.

INSTALLATION:

1. Safety considerations.

- a) Leakage: Consider the possibility of flange leakage due to improper tightening of flange bolts.

Pinch valves handle abrasive fluids; it is reasonable to expect the sleeve to eventually wear out. Precautions should be taken where liquids may drip down onto plant personnel or electrical equipment, or combustible fluid may drain into a dangerous area.

- b) After shut down: Pinch valves seat gas tight and may hold pressure in a system for a considerable length of time. Means should be provided to safely relieve this pressure and drain lines.
2. Allow as long a straight run as possible into and out of throttling valves. A good rule of thumb is 10 to 20 pipe diameters up stream, and 3 to 5 pipe diameters down stream.
 3. Select a valve location for easy access. Locate the valve where it can be reached for service and sleeve replacement.
 4. Be sure pipeline is clean. Foreign material left in the pipeline can damage valves. Clean the mating flanges of adjacent pipe. Remove any old gasket material.
 5. Inspect the valve before installation. Report any shipping damage before installation. **DO NOT INSTALL A VALVE KNOWN TO HAVE BEEN DAMAGED IN SHIPMENT.** Check inside the valve sleeve to make sure no foreign objects are present.
 6. Pinch valves can be installed with flow in either direction.
 7. Make sure adjacent pipes is properly aligned. Adjacent pipe must have sufficient travel to insert valve and then draw tight to compress sleeve faces; valve will not stretch. Add an expansion joint if necessary to obtain required free play. Make certain adjacent pipe has sufficient free play to allow removal and reinstallation of the valve. (Flange gaskets are not required, but may be used for spacers if necessary.)

Coat faces of valve sleeve with silicone (NOT OIL or GREASE) lubricant to facilitate installation and later removal of the valve and to preserve the resiliency of the rubber.

8. Bolt valve into pipeline. Snug up the bolts gently in a criss-cross pattern. It may be necessary to re tighten bolts later after the rubber has taken set.
9. **IMPORTANT - INSTALL SUFFICIENT PIPE SUPPORTS TO ISOLATE VALVE BODY FROM EXCESSIVE FORCES.**

10. For valves supplied with optional electric actuator:

- a. Refer to electrical schematics and separate instruction manual supplied with the actuator for correct wiring.

- b. High voltage may be present inside the electric actuator. Turn off electric power before performing any wiring or maintenance. All wiring must be performed by a qualified electrician in accordance with national and local electrical codes. Failure to heed this warning could result in injury, death, or damage to equipment.
- c. The electric actuator housing must be appropriate for the location in which the valve is installed, i.e.: weatherproof housing in outdoors location, or Explosion Proof housing in a hazardous area.
- d. On valves with electric actuator, all actuators are calibrated and tested at the factory. Limit switches and torque switches are set, positioners and dial indicators are calibrated and ready for operation.

SLEEVE REPLACEMENT

1. Open the pinch valve. Relieve process pressure and drain process line.
2. Remove valve from process line.
3. If valve has optional gearbox or electric actuator, these devices must be removed. Remove bolts that attach gearbox or actuator adapter to the valve bonnet assembly. The gearbox or actuator will slide off the valve stem.
4. Separate the bonnet halves (#1) by removing bonnet bolts, nuts, and washers (#15). Gently pry the bonnet halves apart.
5. Remove the lower pinch bar assembly (#5) by removing the hex nuts (#8) from the tie rods (#4).
6. If sleeve (#17) is provided with POF tabs (Positive Opening Feature - integrally molded tabs bolted to the pinch bar), follow steps 'a' through 'e' below. If no positive opening tabs are provided, then proceed directly to step 6.
 - a) Remove bolts, nuts and washers (#16) that secure the POF tabs to the pinch bars. The sleeve (#17) is now free from the pinch bars (#3 and 5).
 - b) Discard old sleeve. Prepare new sleeve for installation.
 - c) POF tabs are designed to have holes punched in the field using a gasket hole or pliers type punch. Hole diameter in tabs should be approximately equal to hole diameter in the pinch bar.
 - d) POF tab holes must be punched in proper alignment with respect to the flange face holes, or there will be hell to pay when you reinstall the valve.

Make certain the flange holes in the rubber sleeve face align with the drilled holes in the metal bonnet assembly. **It is very difficult to twist the rubber sleeve into position to align these holes later.**

- e) Replace POF tab bolts, nuts and washers (#16). Use flat washers on every hole. If you replace bolts, cut or grind flush with nut so bolts will not puncture sleeve in closed position.
7. Apply a coat of silicone valve seal to the mating flanges of the bonnet assembly (#1).
 8. Insert new sleeve and replace lower pinch bar assembly (#4 and 5). Replace the nuts (#8) on the tie rods (#4).
 9. Reassemble the bonnet assembly (#1). Replace bonnet hardware (#15). If valve was supplied with optional gear box or electric actuator, remount the gear box or actuator.
For electric actuators, you must reset the limit switches. Note that valve is position seated / not torque seated! See separate instructions supplied with the actuator.
 10. Reinstall valve in process line.

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